

208-211), and, at the request of the Earth Tremors Committee of the British Association, he wrote an admirable summary of his results up to the middle of 1893. As this is readily accessible, it is unnecessary to enlarge upon his achievements here. I will merely add that since that date he has written several papers on earthquake-pulsations in Petermann's *Mittheilungen* and the *Astronomische Nachrichten*. His last memoir, and one of the most valuable, has just been published in Gerland's *Beiträge zur Geophysik*.

For several months before his death, von Rebeur-Paschwitz was occupied with a scheme for the organised study of earthquake-pulsations all over the globe. The suitability of his horizontal pendulum for this purpose had received ample proof, and nothing but the want of health seemed likely to prevent the fulfilment of his plans. These, no doubt, will be carried out by other, if less skilful, hands; but to him will belong a great part of the credit for any results that may be attained. Dying at thirty-four, he had done work which most men of twice the age might regard with satisfaction as the fruits of a well-spent life. CHARLES DAVISON.

CHARLES V. RILEY.

CHARLES V. RILEY, M.A., Ph.D., whose death on the 14th ult., in consequence of injuries received in a fall from a bicycle in the streets of Washington, was announced in these columns on October 3, was an Englishman, born at Walton-on-Thames in 1843. He emigrated to the United States at the age of seventeen, and settled, as we learn from the *Garden and Forest*, on a farm in Illinois. Like so many other Americans, who have since made a reputation in science, he served as a soldier in the civil war. Subsequently, after some experience as a journalist, he was appointed State Entomologist of Missouri, a position he occupied nearly ten years. During this period he did excellent work in the investigation of the life-histories of insects injurious to plants, and experiments to discover the most effectual means of destroying them. But one of his earliest papers was on a new genus (*Pronubia*) of the Tineidæ, and the part it plays in the fertilisation of *Yucca*.¹ This was an important and interesting contribution to biological science. In 1878 he accepted the post of Entomologist to the United States Department of Agriculture at Washington, where, in the words of the authority cited above, he practically supervised all the entomological work of the Government until his resignation last year. The valuable results of the investigations and experiments conducted by him and his staff, were in part published in occasional bulletins, of which thirty-two appeared between 1883 and 1894, and partly in the now familiar periodical entitled *Insect Life*, which was established in 1888. Six volumes appeared under his editorship. Dr. Riley was an indefatigable worker, and his organising and administrative abilities were well exemplified in the department which he so successfully developed. W. B. H.

NOTES.

IT is stated that in order to enable the Berlin Academy of Sciences to issue a complete edition of Kant's works, the Government of Russia has consented to place at its disposal for a time the philosopher's manuscripts belonging to the University of Dorpat.

ACCORDING to the *British Medical Journal*, the New York Pasteur Institute has purchased thirty-five acres of land near Tuxedo Park, on which an experiment station is to be established. The station will be stocked with cows, horses, sheep, and goats, which will be used for the production of diphtheria

¹ *Transactions of the Academy of Science of St. Louis* iii. (1875) p. 55.

and cancer antitoxins. The situation is healthy, and in the grounds there will be a house in which some of the patients of the Institute will be treated. A new station, to be known as the Pasteur Station, will be established on the Erie Railroad, close at hand.

WE regret to notice the following announcement in *Science* :—“Prof. Ernst Ritter, whose appointment as assistant professor of mathematics in Cornell University was recently announced, died on September 23, of typhoid fever, on his arrival in America from Germany. Ernst Ritter was born at Waltershausen, Germany, on January 9, 1867. He spent twelve years at the Gymnasium at Gotha, and afterwards studied mathematics and natural science under Thomas, at Jena, and under Klein and Schwartz, at Göttingen. In 1890 he passed the Government teacher's examination with the highest distinction, after two years of pedagogical work at Cassel, and at the Wöhlerschule in Frankfurt. He took the degree of Ph.D., *summa cum laude*, at Göttingen in 1892. In 1893 he was appointed assistant to Prof. Klein, and began to devote his entire time to mathematics, contributing regularly to mathematical periodicals. Last year he lectured on geometry and the theory of automorphic functions, in which he was an authority. He was appointed to his Cornell professorship last June.”

WE learn from the *Journal* of the Franklin Institute that the German Hygienic Association offers a prize of 1200 dols. for a research essay on the efficiency of electric heaters. The programme is as follows: “The heat given out in heating installations by heaters in their various forms and modes of use is to be ascertained. The investigations are to be described in detail in respect to the arrangement of the heaters, the nature of the heating agents, and the observations made; and they are to be illustrated by drawings. The heating values obtained are to be stated in units of heat given off per hour per unit of surface. In the case of heat given out to air, the investigations must be conducted with currents of air at speeds as different as possible. The heaters are to be described in detail as regards form and measurement, and the relation of their heating efficiency to their weight is also to be ascertained.” Essays are to be written in German, and sent, with a motto and sealed envelope, to Prot. Konrad Hartmann, Charlottenburg, Fasanstrasse 18, before July 1, 1896. The essay will remain the property of the successful competitor, but he is required to publish it within six months, and to give the prize offerers gratuitously 300 copies. The offerers reserve the right to divide or withhold the prize.

THE display of horseless carriages, held at Tunbridge Wells on Tuesday, under the superintendence of Sir David Salomons, will do something towards the introduction of self-propelling light vehicles in England. Two carriages, fitted with Daimler motors, were shown in operation. One of these, that belonging to Sir David Salomons, weighs 13 cwt., and will run nearly two hundred miles without recharging. The motor has a horsepower of 3½, and a speed of fifteen miles an hour can be attained on a level road, while on a gradient of one in ten a speed of four miles an hour is reached. A mechanical tricycle, worked by a petroleum motor with electric spark ignition, was shown by MM. de Dion and Bouton, of Paris. The tricycle can run at a rate of fourteen miles an hour, and only needs a fresh supply of benzine after about six hours' work. The exhibition proved the capabilities of auto-mobile carriages to a large number of spectators, and it will probably do something to bring about a change in the present vexatious Highways and Locomotives Act, which at present limits the rate of speed of self-propelled carriages to two miles an hour, and makes it necessary for a man carrying a red flag to precede the carriage as a warning of approaching danger!

THE first series of lectures given in connection with the Sunday Lecture Society begins on Sunday afternoon, October 20, in St. George's Hall, Langham Place, at 4 p.m., when Prof. Sir Frederick Pollock, Bart., will lecture on "Tyndall as Worker and Teacher." Lectures will be subsequently given by Dr. C. W. Kimmins, Rev. Stewart Headlam, Prince Kropotkin, Mr. Graham Wallas, Mr. Wyke Bayliss, and Dr. R. D. Roberts.

FACTS are always worth recording, and we publish the following note because it contains an interesting fact, which is, moreover, in accordance with other observations. The note came to us from Mr. Mata Prasad, Benares: "It was quite accidentally observed, by a stammering friend of mine, during the months of May and June last, that on moonlight nights he stammered more than on dark nights, and when he slept exposed to the rays of the moon during the month of June, he found that he stammered the most on days succeeding full moons, while a day just after the new moon, and a day before, he had not a single attack of the fit."

THE organisms responsible for the production of the Japanese beverage saké are still the subject of comment and investigation. Only a few weeks ago we received a communication from Dr. Jørgensen, in which he claimed to have discovered that the mould known as *Aspergillus oryzae*, employed in the preparation of saké, was capable of producing the yeast cells invariably present, and that, therefore, only one organism was responsible for the elaboration of this well-known beverage. Mr. Atkinson, who investigated this subject some years ago in Japan, could find no evidence of the transformation of the mould into yeast cells, and maintained that the mycelium and the ferment were entirely distinct. This view has been quite recently upheld by some experiments published by Messrs. Kosai and Yabe, of Tokio. They have found that in the preparation of saké two distinct organisms are required, the well-known *Aspergillus* and a species of yeast. These have been carefully isolated and their growth watched in various solutions, with the result that the mould only gave rise to typical mycelium growths, whilst the yeast elaborated only yeast cells, without exhibiting a trace of mould. The authors are now engaged upon carefully identifying this saké-yeast, and state that, as far as their investigations at present go, it resembles the *Saccharomyces cerevisiae*, with which they are carrying out numerous comparative experiments.

ONLY those who have much to do with scientific literature know how important, and yet how much neglected, is the art of making references. No apology is needed, therefore, for reprinting in full the following rules abstracted from a paper that appeared in the *British Medical Journal*, 1895, vol. i. p. 875, by Mr. J. B. Bailey, Librarian of the Royal College of Surgeons of England. The rules can be obtained printed on a card, so that an abstractor can always have them before him. (1) The titles of all books and periodical publications should be given in the language in which they are written. (2) References should be taken from the title-pages, and not from the lettering on the backs of books. (3) Where two, or more, vols. are bound together, care should be taken that the reference is made from the right title-page. (4) Where a journal is in more than one series, the number of the series as well as the vol. and date should be given. (5) When an abstract only of a paper is referred to, this fact should be stated, and reference to the original paper given if possible. (6) Journals and Transactions should not be quoted by the date of issue, but by vol., date and page. (7) In books which have two sets of paging, care should be taken to specify exactly the pagination to which reference is made. (8) The name of the editor of a journal should not be used as part of a title unless it be necessary to distinguish between two journals with similar titles. (9) References to papers read before

Societies which do not publish any separate reports of their meetings should quote the journal where the paper in question can be found. (10) In abbreviating titles care should be taken that the abbreviation shows exactly what journal is referred to, e.g., *Jnl. Anat. Physiol.* does not make it clear whether an English, French or German book is quoted.

THE Smithsonian Institution has recently published a series of directions for collectors, as separate portions of *Bulletin* No. 3 of the U.S. National Museum. The directions for collecting minerals, rocks, and fossils (parts H, I, and K) are written by the curators of the respective departments, and include advice not only on actual collecting, but on preparing, labelling, making sections, &c. Many of the recommendations are novel, and all cannot fail to be helpful to amateur collectors.

THE *Bulletin of Miscellaneous Information* of the Royal Gardens, Kew, for September, continues the *Diagnoses Africanae*, in which, in addition to a large number of new species, two new genera are described: *Cyclocheilon*, Oliv., belonging to the Scrophulariaceae, and *Phillipsia*, Rolfe, belonging to the Acanthaceae. An interesting account is given of the history of the rock-garden, based on a list of herbaceous plants cultivated in the Royal Gardens, Kew, issued by the Department.

UNDER the modest title of "Guide to the Collections of Rocks and Fossils," the Geological Survey of Ireland has published what is really an excellent guide to the geology of Ireland. The authors are Messrs. W. W. Watts and A. McHenry, and the price of the book is ninepence. It opens with a short introduction, explaining the principles on which is based the classification adopted in the Science and Art Museum, Dublin. Two-thirds of the book are taken up with an account of the rocks of Ireland, each of the four provinces being taken in turn. Part iii. begins with a popular account of general Palaeontology, which is followed by a description of the fossils exhibited, and this by a catalogue of figured and type specimens in the museum. Finally we have an index of localities for the rocks described, that should be most useful to amateur geologists.

THE Observatory of Manila has published an extensive discussion of the typhoons of the year 1894, prepared by the Rev. J. Algué, S.J. The work occupies 176 small folio pages, and is accompanied by a large number of plates showing the tracks of the different storms and concomitant data, and also contains some general considerations respecting the character of these disturbances in the extreme East. A section is devoted to the distribution of the various meteorological elements around the centres of areas of low barometric pressures at Manila during the years 1879-94. The result of this discussion shows that the distance of the cyclonic centre cannot be determined from the reading of the barometer alone; but the author describes an apparatus, which he calls a "cyclonoscope," whereby an approximate idea of the distance of the vortex may be determined.

W. ENGELMANN, Leipzig, will shortly publish the collected papers of Prof. W. Roux upon the "Entwickelungsmechanik der Organismen." The work will consist of two volumes, illustrated with lithographic plates, and numerous illustrations in the text.

THE sixth part of *Bulletin* No. 9 of the *Minnesota Botanical Studies* (August 1895), is entirely occupied by a very useful "Contribution to the Bibliography of American Algae," by Miss Josephine E. Tilden. No less than 1544 separate works or papers are enumerated.

THE discourse entitled "The Splash of a Drop," delivered by Prof. A. M. Worthington, F.R.S., at the Royal Institution in May 1894, has been published in book form by the Society for Promoting Christian Knowledge, with illustrations of the

beautiful phenomena described. The arrangement employed to obtain photographs of drop-splashes, and some of the results, were shown in NATURE of July 5, 1894.

DR. E. RUDOLPH, who has given much attention to submarine earthquakes and eruptions, has recently contributed a second valuable memoir on "Seebeben" to the *Beiträge zur Geophysik*. It contains accounts of more than two hundred additional shocks, and also a small map of the seismic zone of the Equatorial Atlantic. The memoir concludes with a useful list of questions for the observation of submarine earthquakes.

M. DE FONVIELLE has translated into French Lord Salisbury's Oxford Address to the British Association, and MM. Gauthier-Villars et Fils have just published the translation in their series of *Actualités Scientifiques*, under the title "Les Limites Actuelles de notre Science." The address is prefaced by a long introduction, in which the translator describes the circumstances under which it was given; and throughout the pages there are numerous notes explanatory of points, the importance of which might be overlooked by French readers.

A NEW volume in the Aide mémoire Series, published jointly by Gauthier-Villars and Masson, is "Polarisation et Saccharimétrie," by D. Sidersky. The volume is a handy aid to the study of polarisation and its numerous applications in analytical chemistry. The first part contains a description of the properties of polarised light, a table of the specific rotatory powers of various optically active substances, and explanations of polarising apparatus. The second part of the book is devoted to the applications of the constant of rotation to the quantitative analysis of sugars, alkaloids, &c., together with a number of tables which will facilitate the practical application of the processes described.

By the recent publication of two numbers of the *Essex Naturalist*, the Essex Field Club has brought their journal up to date. The first number (November-December 1894) includes papers on "Izaak Walton's Association with the Lea," by J. E. Harting, the "Geology of the Lea Valley," by T. V. Holmes, and on "Navestock in Olden Days," by Rev. S. Coode Hore. The second number (January-June 1895), contains a paper, by Prof. Meldola, on the "Eastern Boundary Stones of Waltham Forest," the Presidential address (in which the part played by the Club in the development of technical education in the county is explained), and a series of three papers, by Messrs. T. V. Holmes, E. T. Newton, and W. M. Webb, on the section in brick-earth at Chelmsford in which mammoth remains were recently found.

SEVERAL interesting papers are contained in the part of the *Proceedings* of the Royal Society of Edinburgh, just published (vol. xx. pp. 385-480). In "A Sketch of Lake-Dwelling Research," Dr. Robert Munro shows that over a wide geographical area, extending from Ireland to Bosnia, and from North Germany to Italy, the habit of constructing lake- and marsh-dwellings was prevalent in former times. Prof. Sir William Turner, F.R.S., has a paper "On M. Dubois' description of remains found in Java, named by him *Pithecanthropus erectus*; with remarks on so-called transitional forms between Apes and Man." A paper on drops, by Mr. J. B. Hannay, summarises the work of various observers on the formation of drops, and the variation with density and chemical composition of the liquid forming them, and gives the author's own investigations upon the subject. There are also in the *Proceedings* Prof. T. R. Fraser's two papers on "Antivenine," and a paper by Prof. J. C. Ewart "On the Dorsal Branches of the Cranial and Spinal Nerves of Elasmobranchs."

THE fourth edition, revised and enlarged, of Dr. Carl Günther's "Bakteriologie" has been published by Georg Thieme,

Leipzig. We noticed the third edition in March of last year (vol. xlix. p. 455), and the present issue sustains the commendation then given, viz. that "the volume is undoubtedly one of the best introductions to the study of bacteriology which has yet been produced." Another new edition which we welcome is the "Cours Elementaire de Manipulations de Physique," by Prof. A. Witz, published by Gauthier-Villars. The book contains a descriptive course of work covering the fundamental principles and laws of physical science. Each experiment is divided up into four sections, as follows: first, the theory of the experiment is stated; then the apparatus is described; the experimental operations form the subject of another section, and the results of observations are given in the fourth. Though the book is here and there deficient in the details required by students of practical physics, it is altogether a useful companion to the physical laboratory.

THE Catalogue of the Library of the Royal Geographical Society, compiled by Dr. H. R. Mill, and lately published, is a very full and valuable index to the literature of geography. The Catalogue contains the titles of all works in the possession of the Royal Geographical Society published up to the close of 1893. The entries (amounting to as many as 18,000) are arranged in four divisions. The first division, which runs into 521 of the 833 pages, is a general alphabetical author's catalogue; the second comprises collections of voyages and travels, arranged in alphabetical order under authors' names, and containing a brief analysis of the contents of each volume; in the third division, Government, anonymous, and other miscellaneous publications are arranged geographically; while the fourth consists of a list of transactions and periodical publications, arranged in a similar manner according to the place of publication. With such a comprehensive classification, it is easy to find the works of each author, and to refer to the literature concerning different divisions of the earth. A valuable supplement to the Catalogue will be the subject index now being prepared, and in which the principal contents of all the geographical books and periodicals belonging to the Society will be classified.

THE additions to the Zoological Society's Gardens during the past week include a Macaque Monkey (*Macacus cynomolgus*, ♀) from India, presented by the Rev. Sidney Vatcher; a Crested Porcupine (*Hystrix cristata*) from East Africa, presented by Captain B. L. Sclater; three Common Rheas (*Rhea americana*) from South America, presented by Mr. Robert Günther; four Rhomb-marked Snakes (*Psammophylax rhombeatus*), three Crossed Snakes (*Psammophis crucifer*), two Rough-keeled Snakes (*Dasypeltis scabra*), a Smooth-bellied Snake (*Homalosoma lutrix*), a Robben Island Snake (*Coronella phocorum*) from South Africa, presented by Mr. J. E. Matcham; a Bonnet Monkey (*Macacus sinicus*) from India, a Yellow Baboon (*Cynocephalus babouin*) from West Africa, a Rose Hill Parrakeet, (*Platyercus eximius*) from Australia, deposited; three Prevost's Squirrels (*Sciurus prevosti*) from Malacca, purchased.

OUR ASTRONOMICAL COLUMN.

THE OBSERVATORY ON MONT BLANC.—Two causes combined to induce Dr. Janssen to undertake his recent ascent of Mont Blanc. First, he was anxious to be convinced of the perfect safety of the new telescope which has been conveyed to the observatory; and second, the meteorograph had ceased to perform its various important duties (*Comptes rendus*, October 7). It is intended to mount the telescope, which has an aperture of thirteen inches, with its axis parallel to that of the earth, and a mirror nearly twenty-four inches in diameter will be employed to reflect the light of the heavenly bodies into the telescope; the mirror and telescope will have a common movement, so that the relative positions of the stars will not change on account of the diurnal motion. The meteorograph was found to be some-